



TECHNICAL MEMORANDUM

To: Michael L. Hermes, Hermes Law Ltd.

From: Philip B. Simon

Date: October 7, 2009

Re: **PRP de minimis Settlement White Paper - Addendum
Lower Fox River, Wisconsin**

Supplemental Analysis of Remedial Investigation Database, 1980-2007

Ann Arbor Technical Services, Inc. ("ATS") recently obtained access to the historical database used for site characterization of the Lower Fox River. This database is a consolidation of work products of multiple investigators spanning the time period from 1980 through 2007. ATS evaluated these data using the same methodology detailed in the PRP de minimis Settlement White Paper ("White Paper"), dated August 20, 2009.

Historically, the sampling density has varied significantly in the five Operable Units (OUs) that span the approximately 40 mile length of the Lower Fox River. Of the more than 7,000 samples collected and analyzed by previous investigators the sample population of PCB positives is as follows:

OU-1	196 data points
OU-2	64 data points
OU-3	1,336 data points
OU-4	5,491 data points
OU-5 IB	280 data points
OU-5 OB	17 data points

The Aroclor distribution in these sample populations was calculated using the same methodology as described in the PRP White Paper. The resulting Aroclor distribution in the samples with PCB positives is summarized in Table 1, and Figures 1 through 5, attached herewith. The non-Aroclor 1242 contribution to total PCB content is as follows:

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OU-1	18.2 %	(Aroclor 1268 not analyzed)
OU-2	10.5 %	(some Aroclor 1268 analysis)
OU-3	34.4 %	(some Aroclor 1268 analysis)
OU-4	13.1 %	(some Aroclor 1268 analysis)
OU-5 (IB)	18.8 %	(some Aroclor 1268 analysis)
OU-5 (OB)	15.0 %	(Aroclor 1268 not analyzed)

These numbers are in good agreement with the results of analysis from the ATS and LFR Phase I Removal datasets as reported in the White Paper. Minor differences in these numbers would be expected from differences in spatial orientation of sampling locations, fixed interval versus geomorphologic layer-based sediment sampling, sample location density, and other factors.

The historical database is particularly useful in determining the Aroclor distribution in OU-3 sediments, for which the other two datasets had no information. From the 1980-2007 data, the non-Aroclor 1242 contribution is calculated to be 34.4 percent.

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Figure 3: Aroclor Distribution in Sediments – OU 3: Historical Data (1980-2007)

Figure 4: Aroclor Distribution in Sediments – OU 4: Historical Data (1980-2007)

Figure 5: Average Aroclor Contribution in Sediments (By Sample): Historical Data (1980-2007)

Table 1:
Aroclor Distribution Summary: Historical Data
PCB Aroclors Detected in Sediments
Lower Fox River, Wisconsin

Aroclor	OU1		OU2		OU3		OU4		OU5 (Inner Bay)		OU5 (Outer Bay)	
	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾	Avg. Conc. (ug/kg)	Percent of Total ⁽¹⁾
Average Aroclor Contribution (by Sample)												
1016	-	-	-	-	-	-	-	-	-	-	-	-
1221	-	-	-	-	-	-	-	-	-	-	-	-
1232	-	-	-	-	-	-	-	-	-	-	-	-
1242	-	81.8	-	89.5	-	65.6	-	86.9	-	81.2	-	85.0
1248	-	-	-	-	-	-	-	-	-	-	-	-
1254	-	15.6	-	5.1	-	7.3	-	6.5	-	5.8	-	-
1260	-	2.6	-	2.6	-	13.8	-	4.5	-	7.6	-	15.0
1268	-	N/A	-	2.8	-	13.3	-	2.1	-	5.4	-	N/A
		18.2			10.5			34.4			13.1	18.8
												15.0

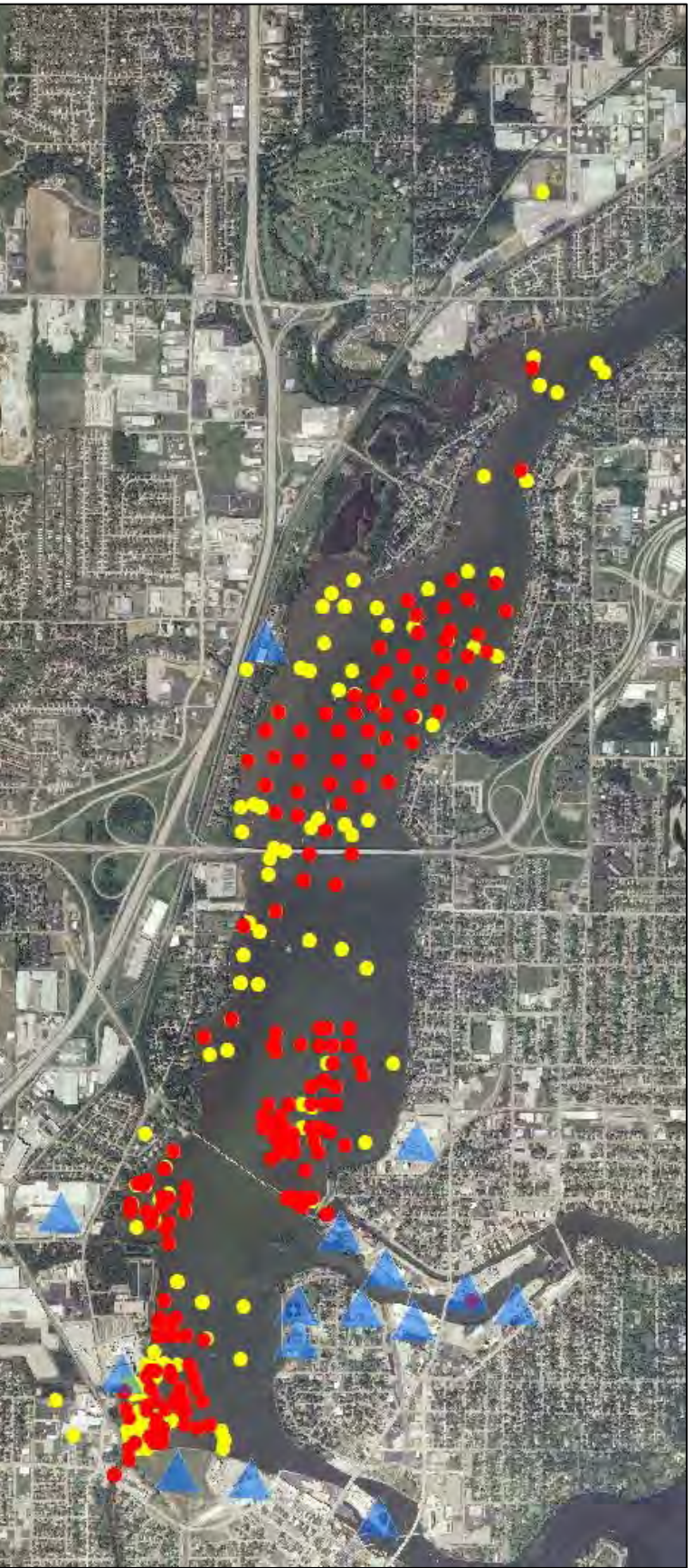
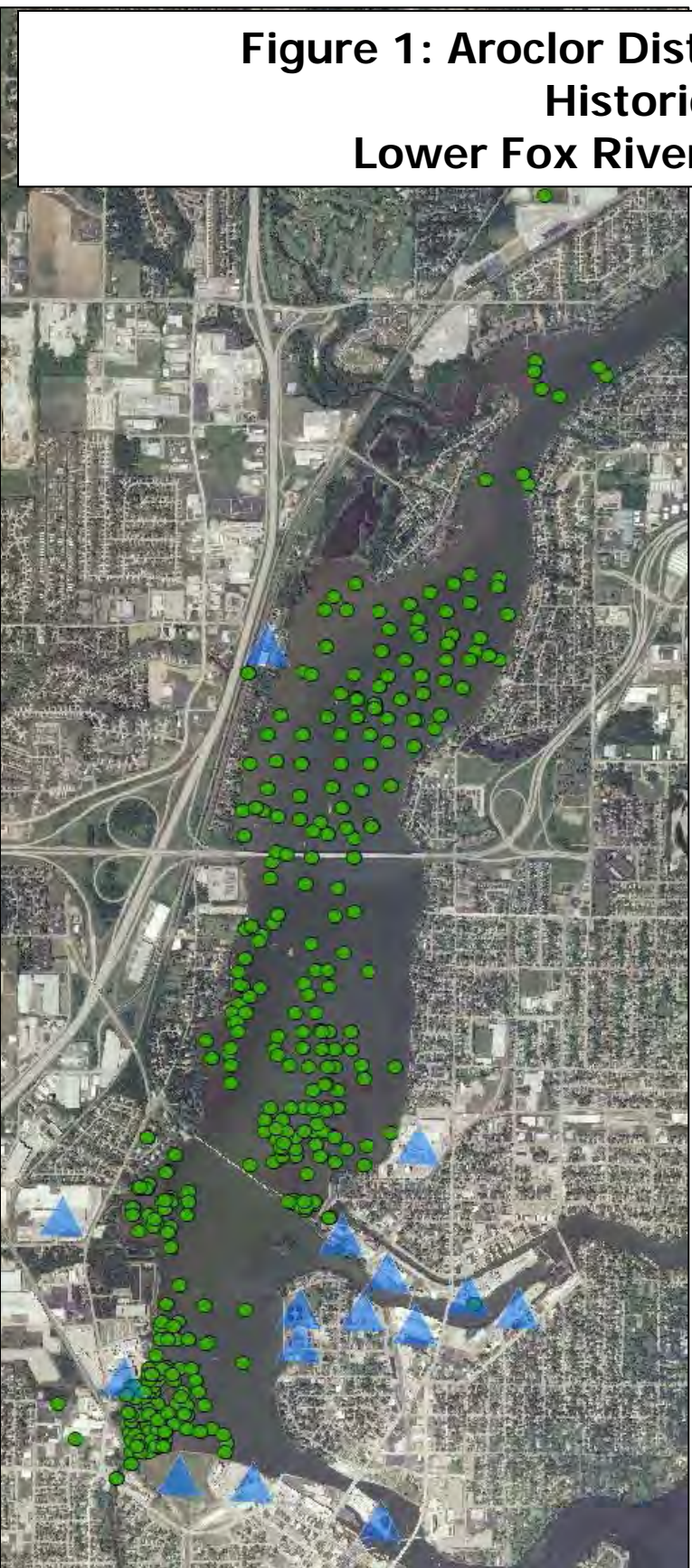
Concentrations are reported in ug/kg, dry weight.

N/A = Not Reported.

Note: Historic Lower Fox River Remedial Investigation Database, 1980-2007. Source: Anchor Environmental, 2009.

(1) Calculated from relative abundances for each positive sample within an OU.

Figure 1: Aroclor Distribution in Sediments
Historical Data
Lower Fox River OU1, Wisconsin

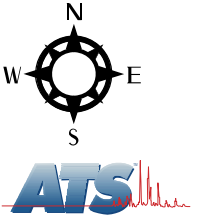


△ PRP Location/Name
● Sampling Location

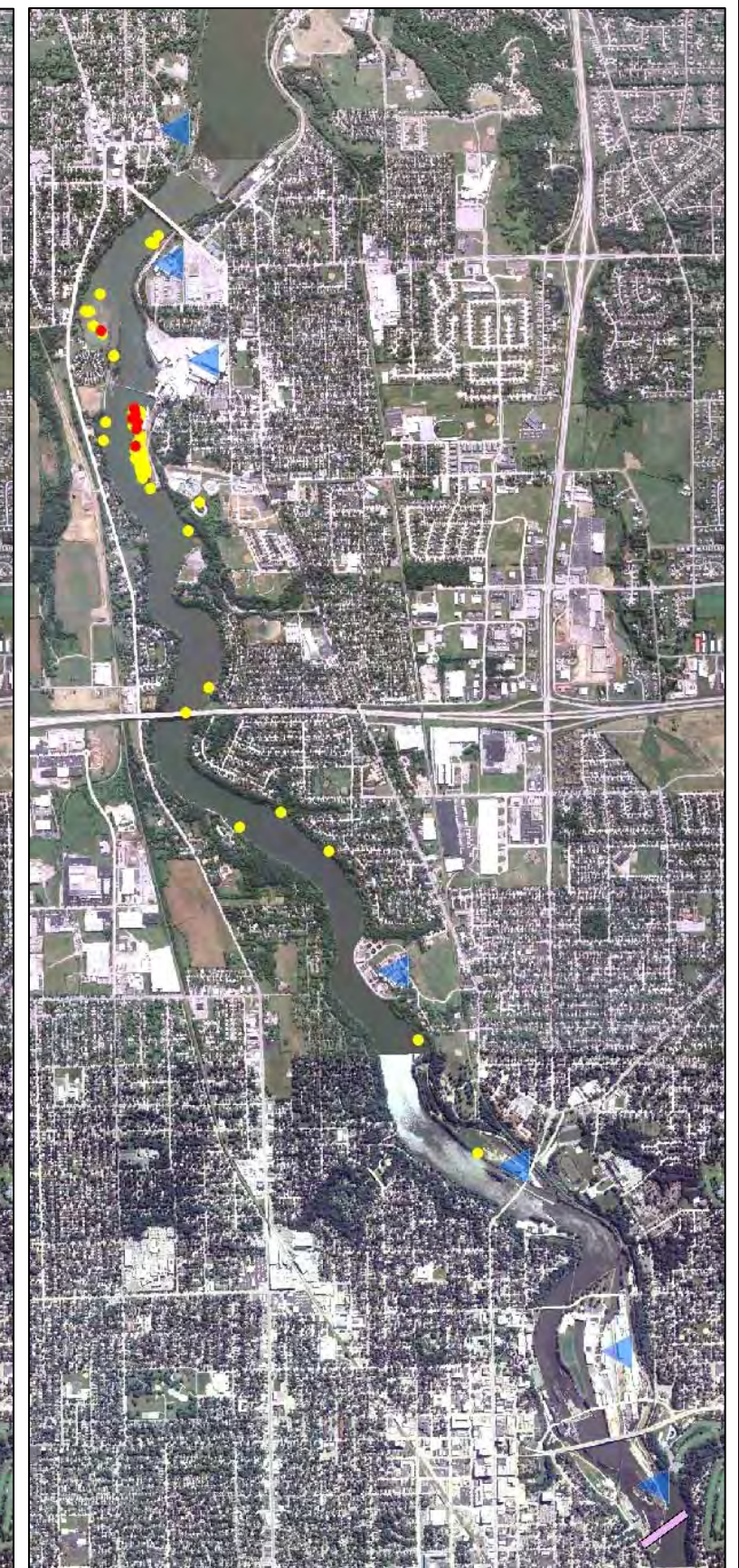
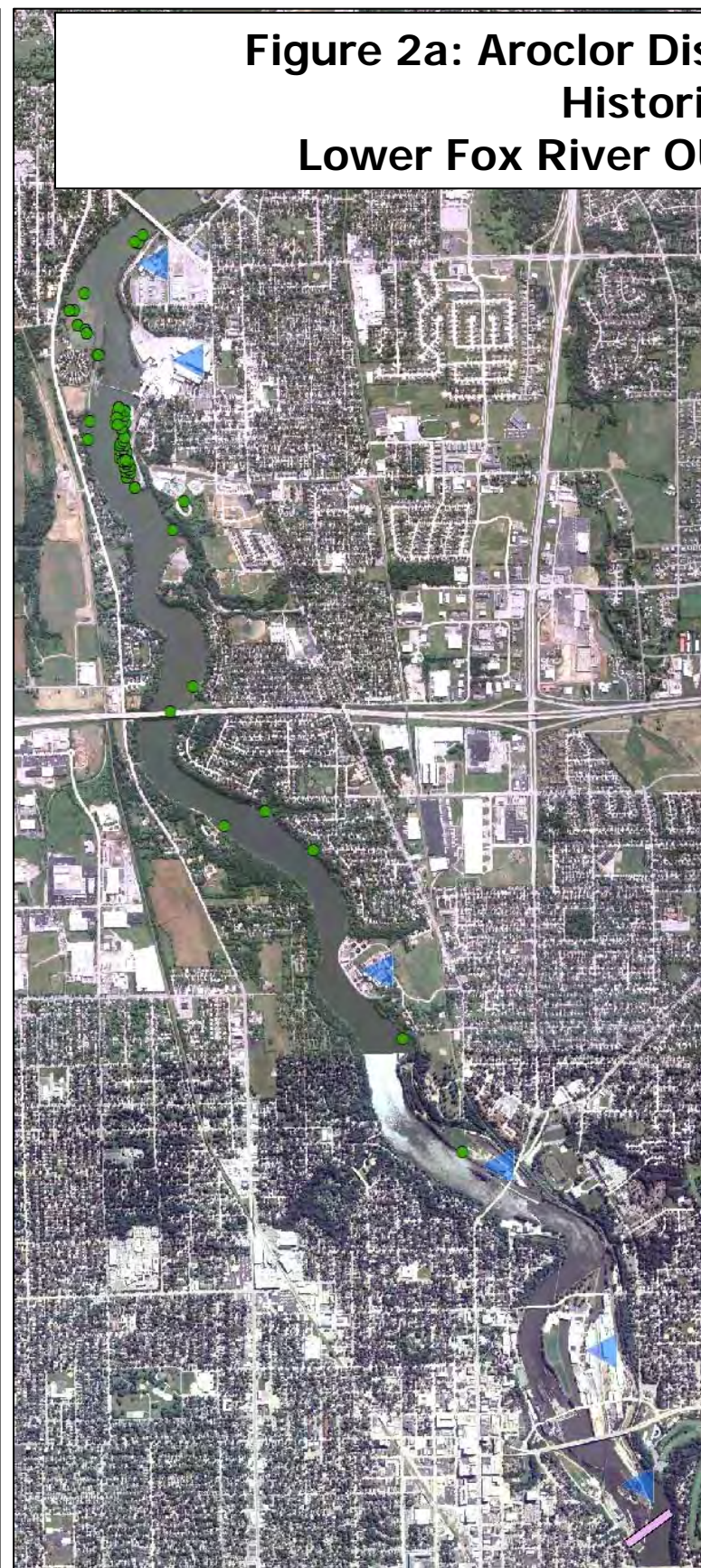
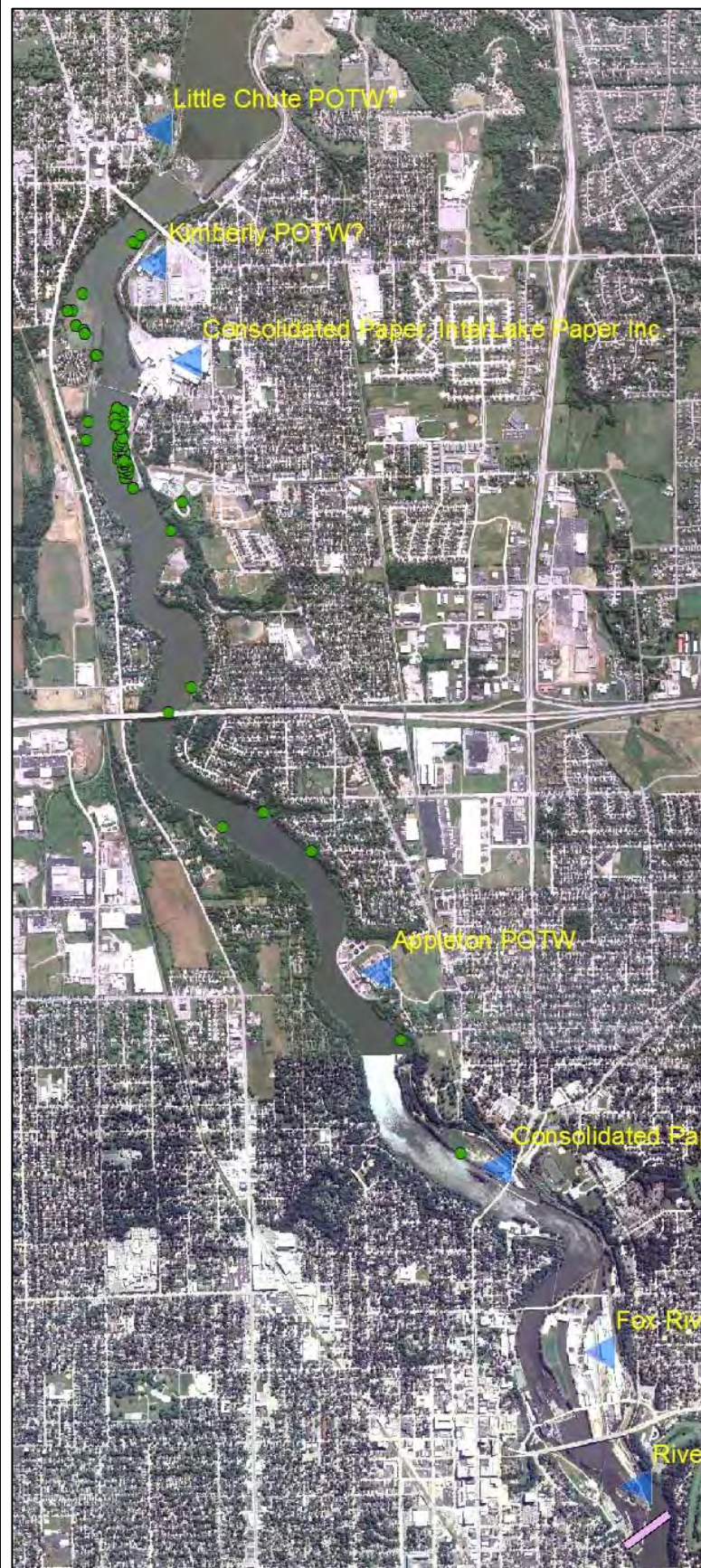
△ PRP Location
● Sampling Location

△ PRP Location
● Aroclor 1242 Positive

△ PRP Location
● Aroclor 1242 Positive
● Other Aroclor Positives



**Figure 2a: Aroclor Distribution in Sediments
Historical Data
Lower Fox River OU2 Upper, Wisconsin**

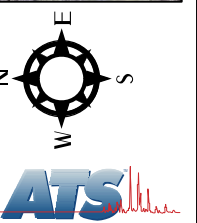


- △ PRP Location/Name
- Sampling Location

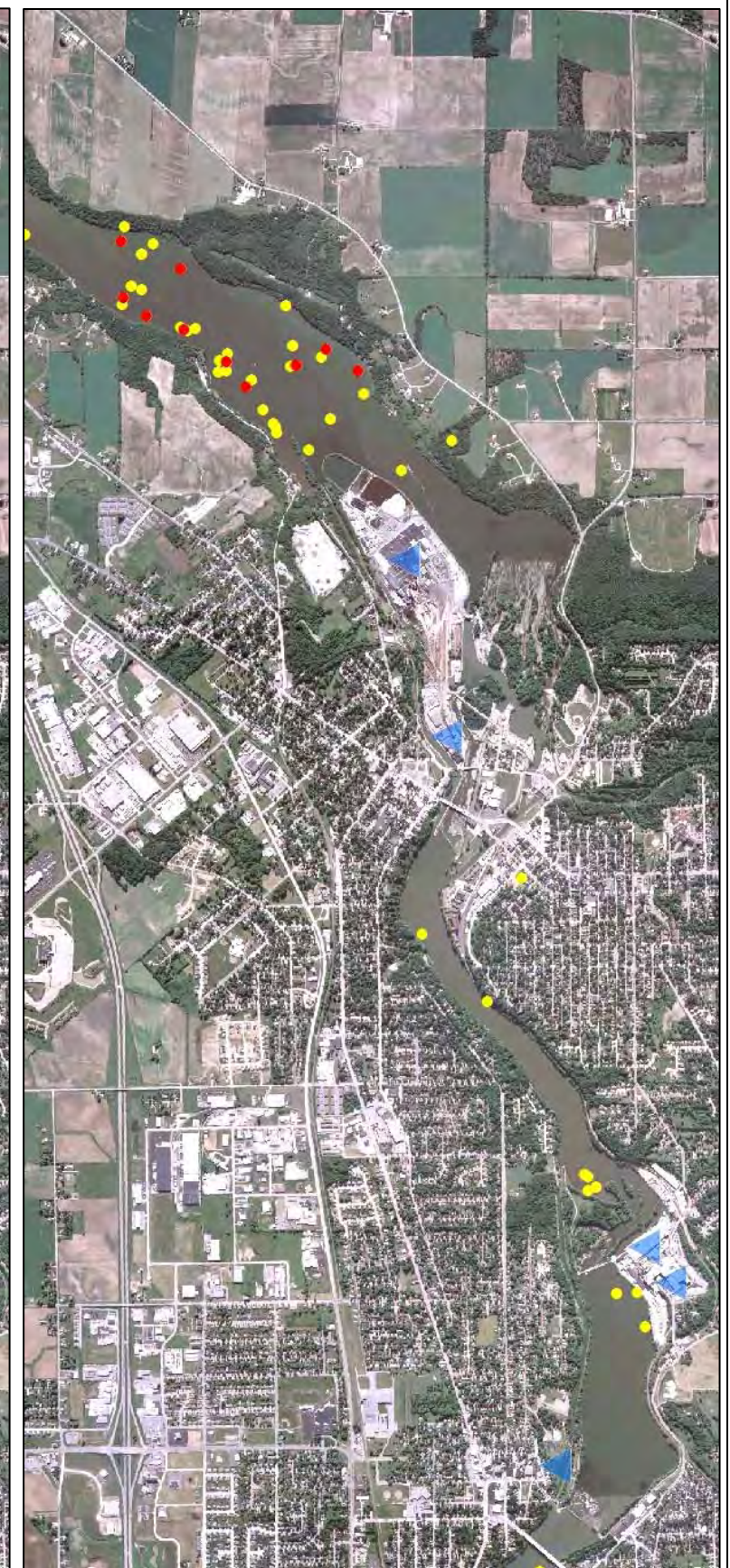
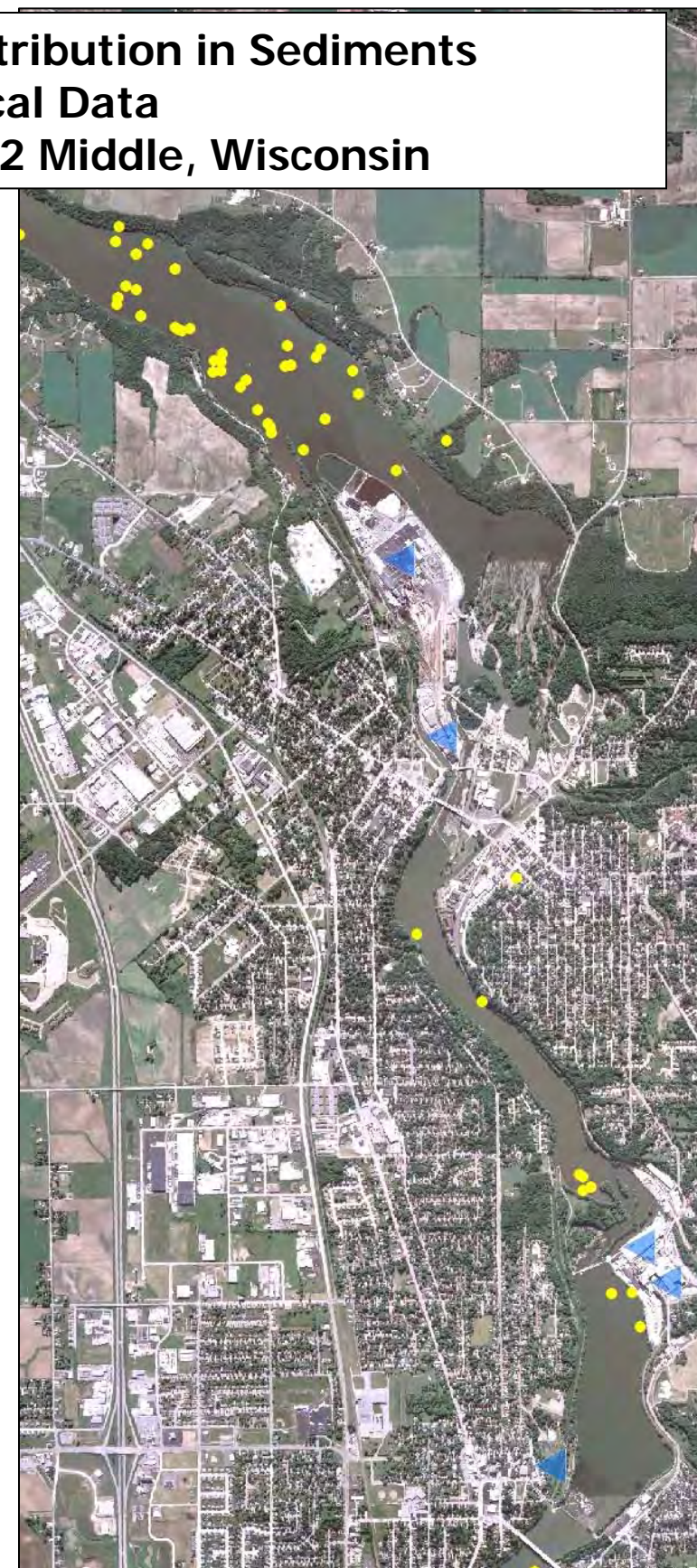
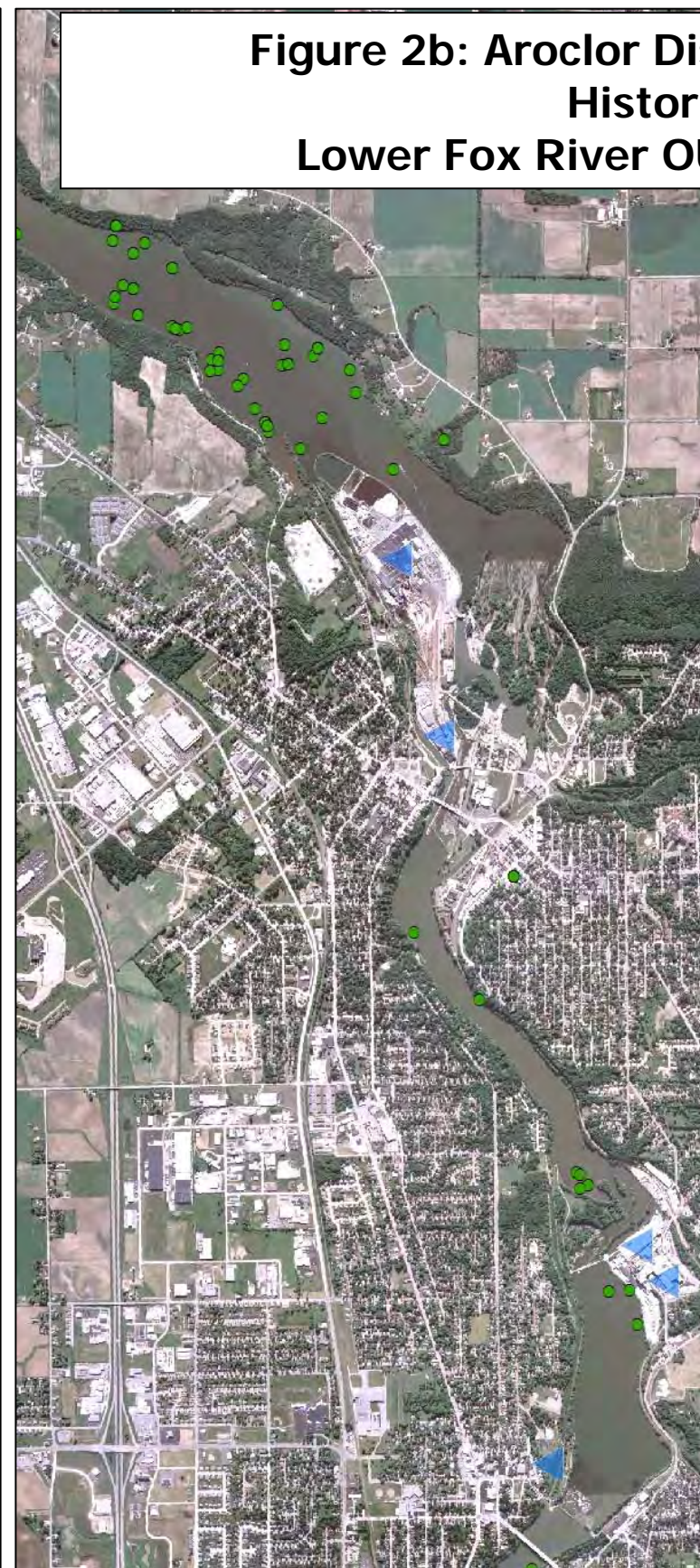
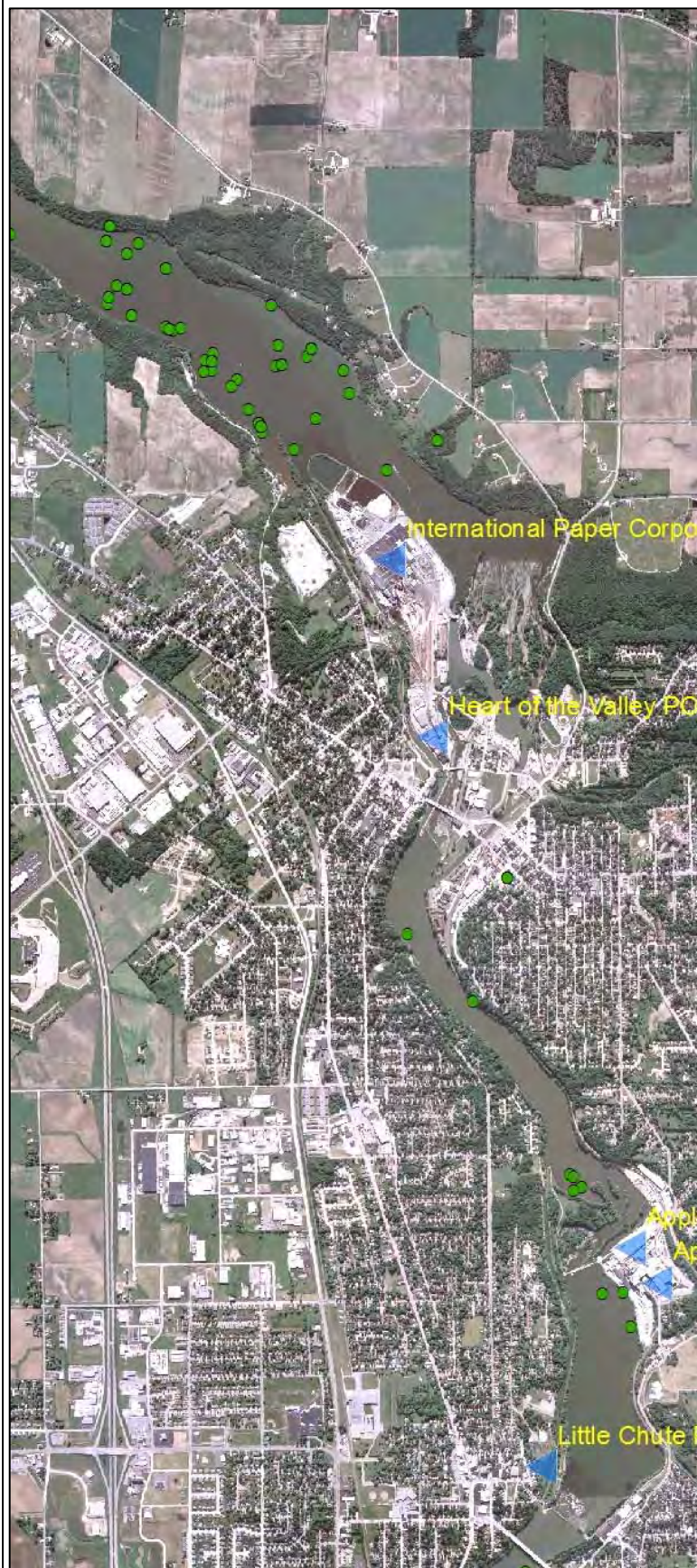
- △ PRP Location
- Sampling Location

- △ PRP Location
- Aroclor 1242 Positive

- △ PRP Location
- Aroclor 1242 Positive
- Other Aroclor Positives



**Figure 2b: Aroclor Distribution in Sediments
Historical Data
Lower Fox River OU2 Middle, Wisconsin**



- ▲ PRP Location/Name
- Sampling Location

- ▲ PRP Location
- Sampling Location

- ▲ PRP Location
- Aroclor 1242 Positive

- ▲ PRP Location
- Aroclor 1242 Positive
- Other Aroclor Positives

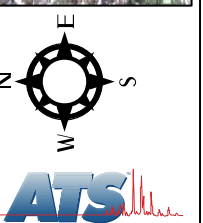
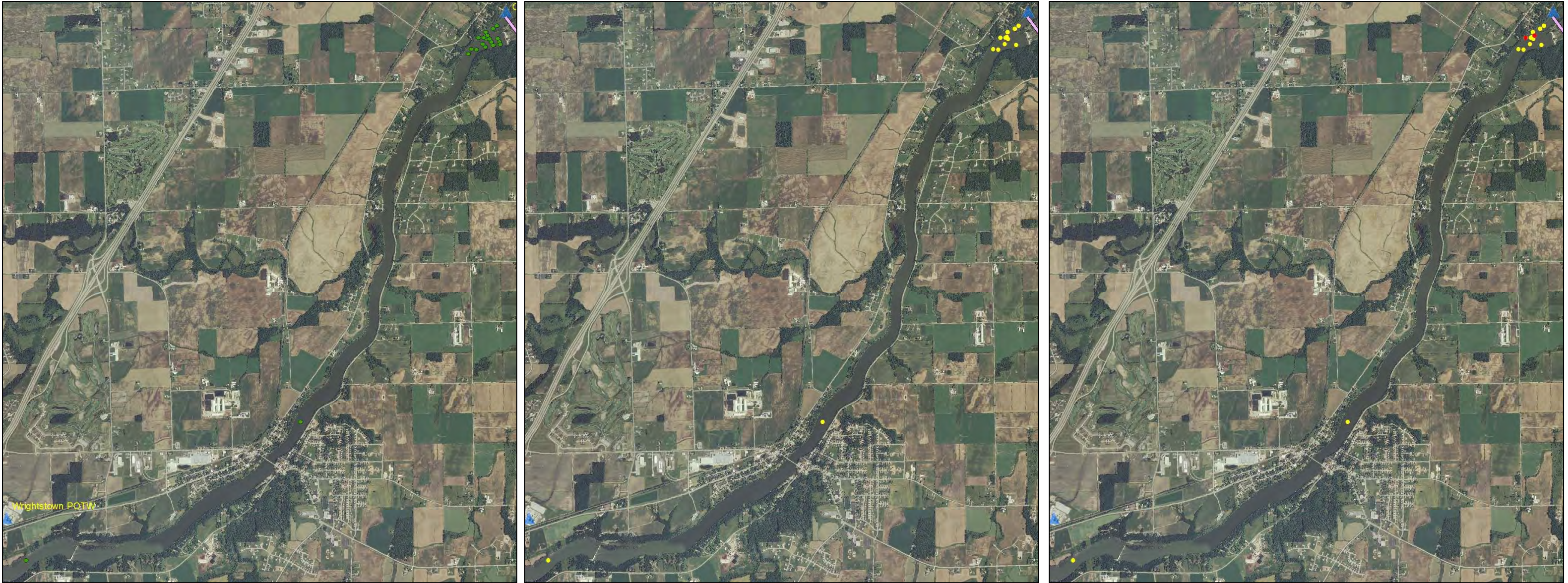


Figure 2c: Aroclor Distribution in Sediments
Historical Data
Lower Fox River OU2 Lower, Wisconsin



△ PRP Location/Name
● Sampling Location

△ PRP Location
● Aroclor 1242 Positive

△ PRP Location
● Aroclor 1242 Positive
● Other Aroclor Positives

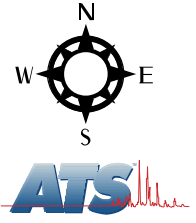
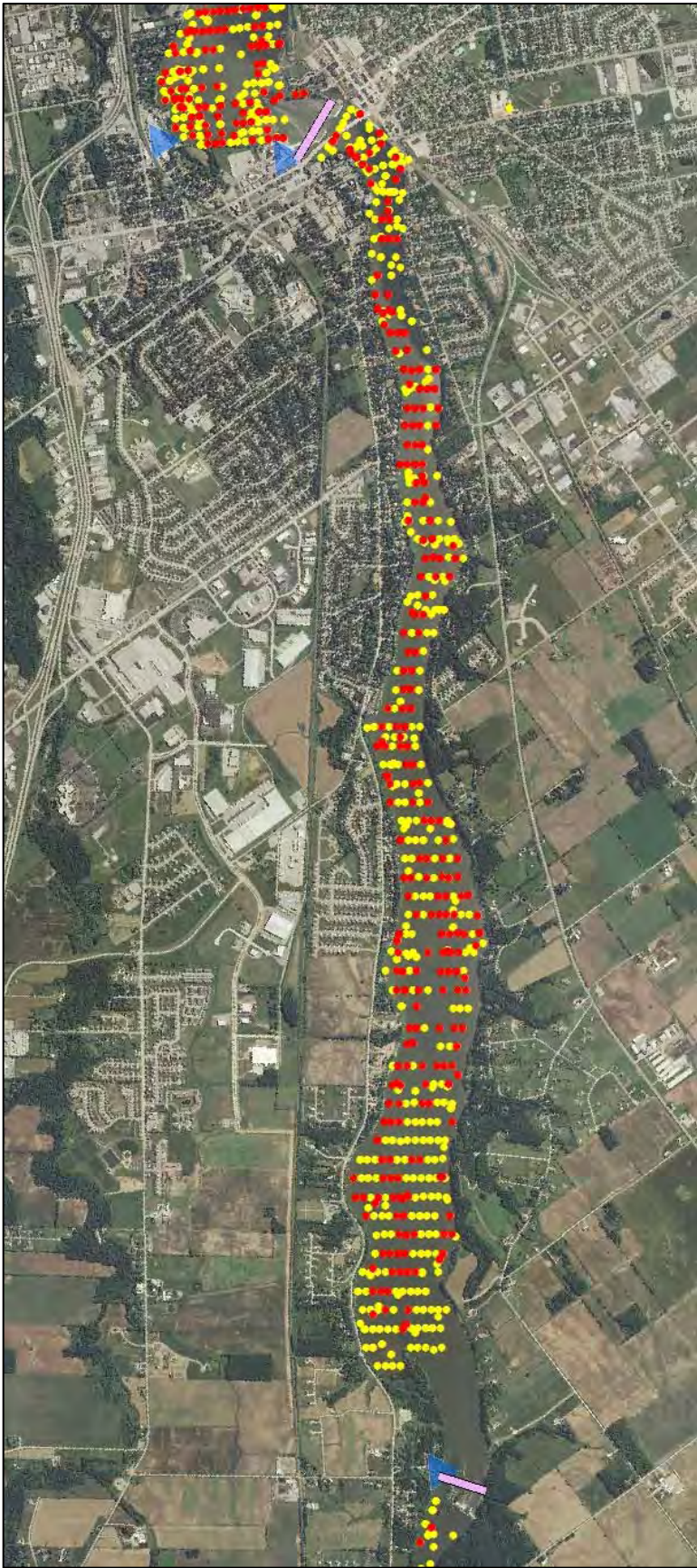
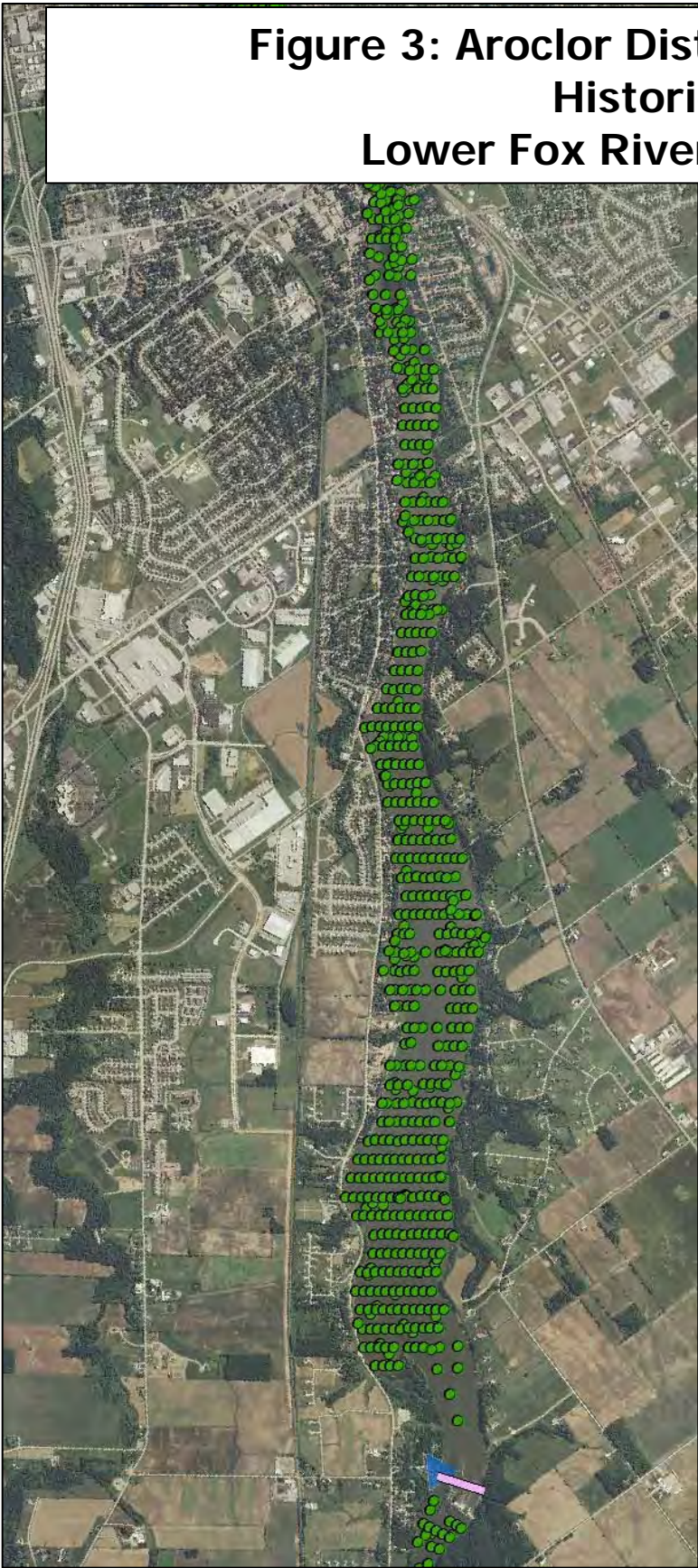
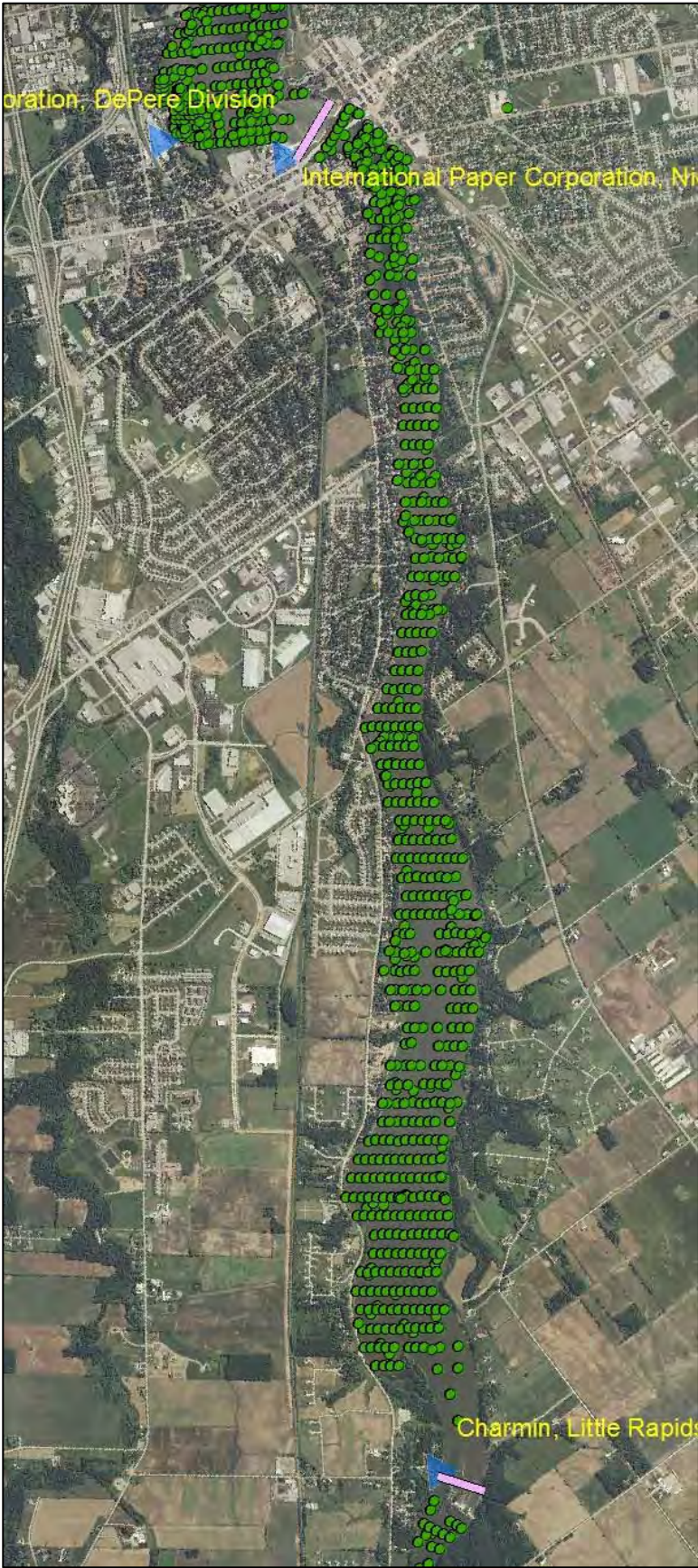


Figure 3: Aroclor Distribution in Sediments
Historical Data
Lower Fox River OU3, Wisconsin



▲ PRP Location/Name
● Sampling Location

▲ PRP Location
● Sampling Location

▲ PRP Location
● Aroclor 1242 Positive

▲ PRP Location
● Aroclor 1242 Positive
● Other Aroclor Positives

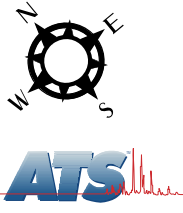
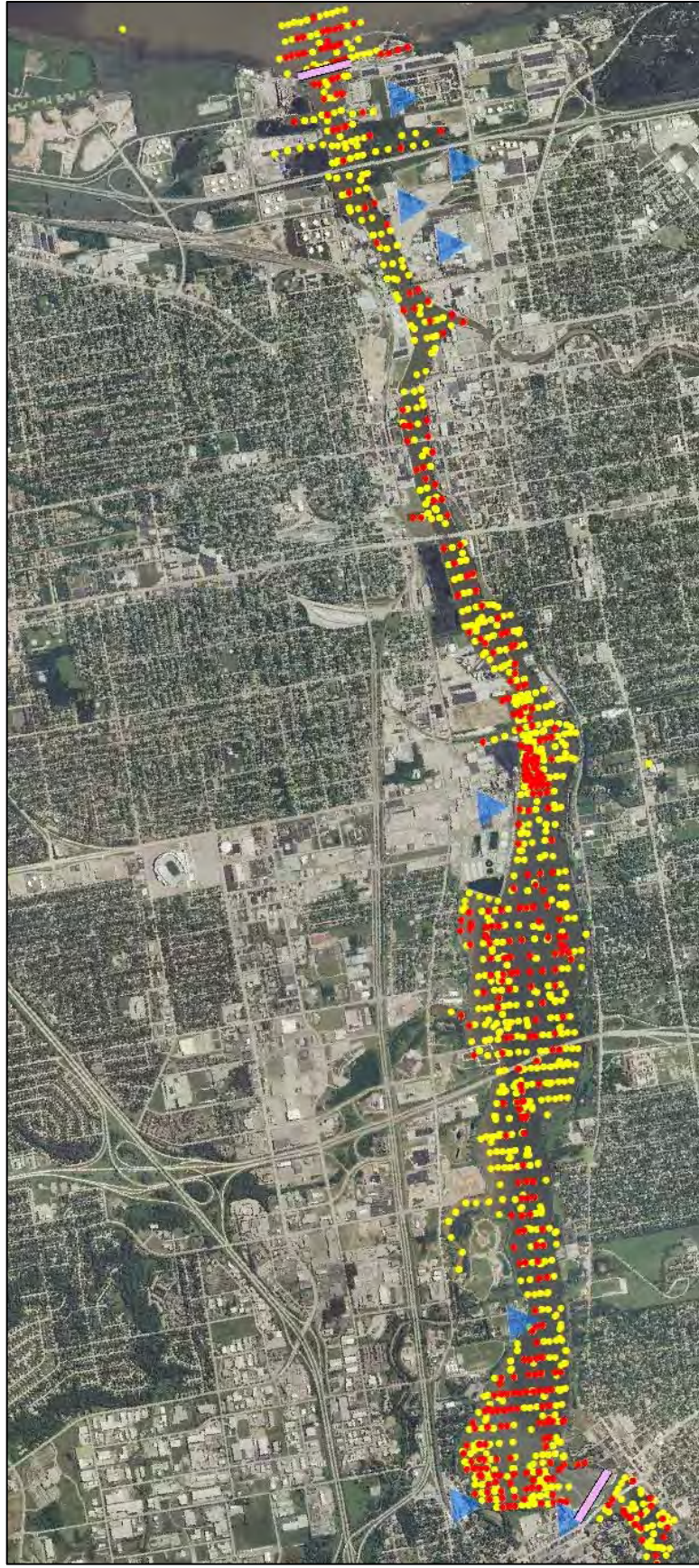
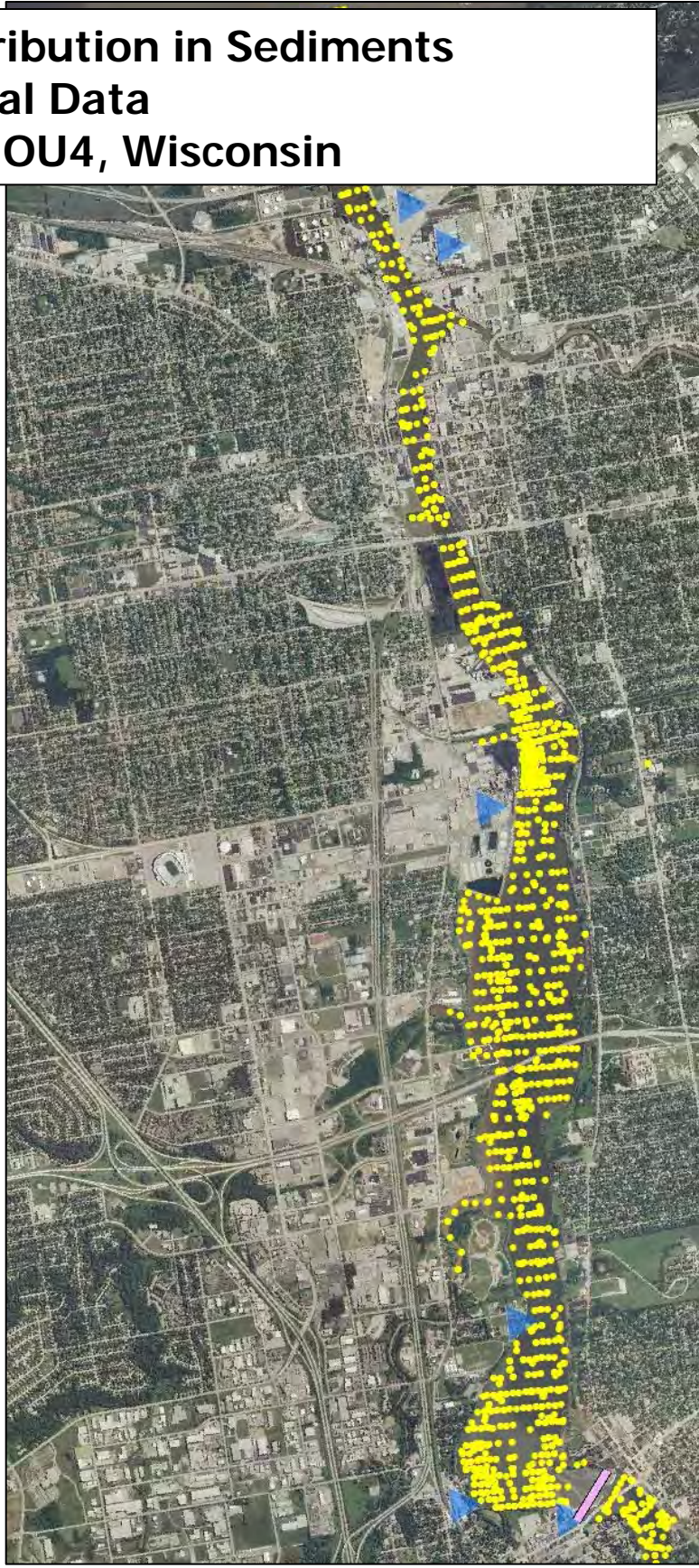
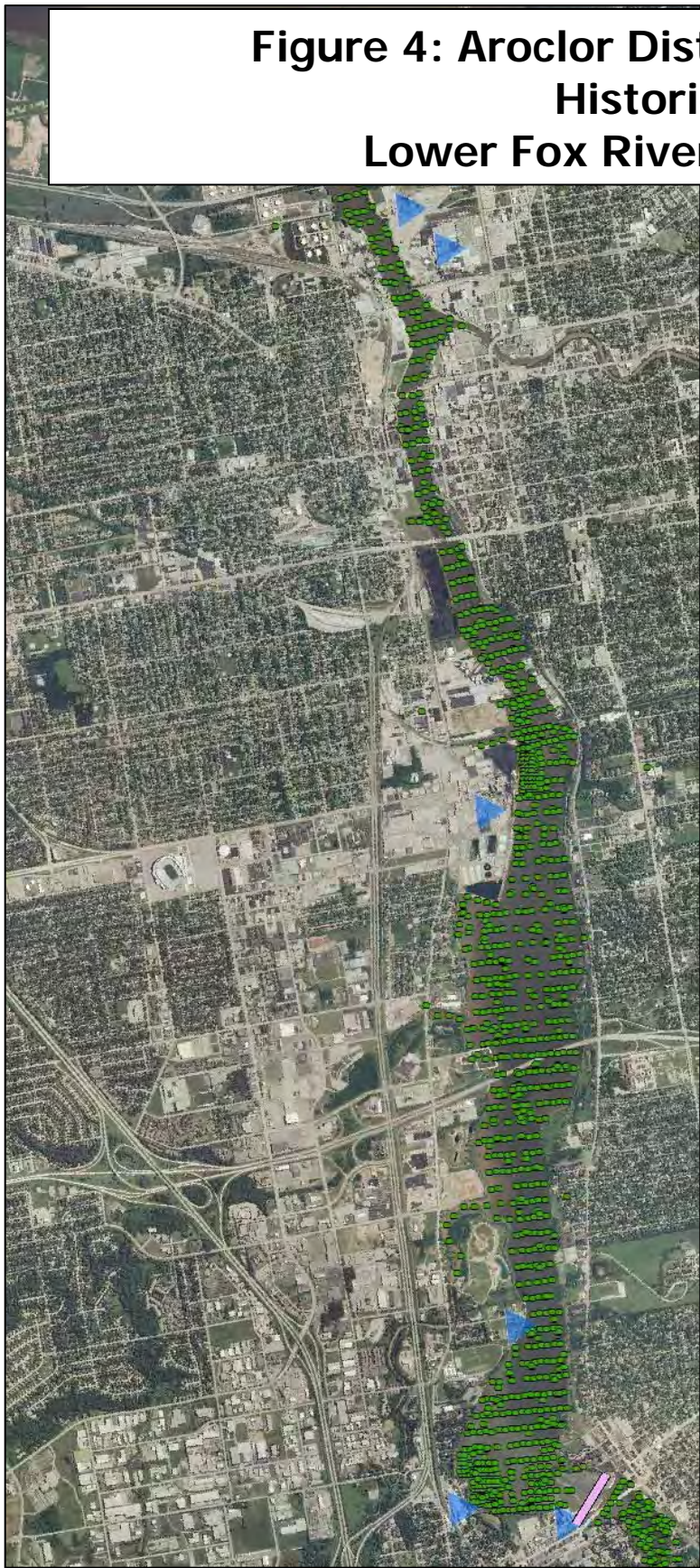
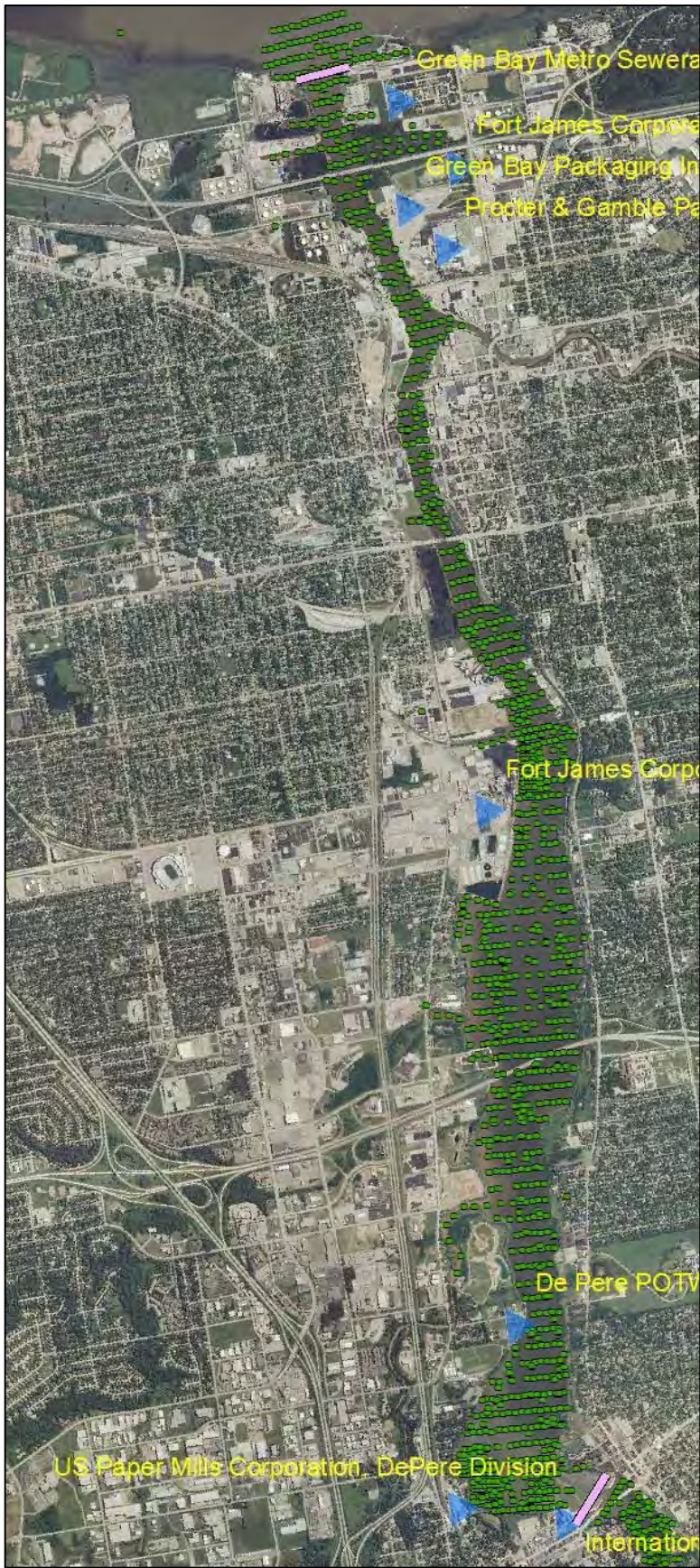


Figure 4: Aroclor Distribution in Sediments
Historical Data
Lower Fox River OU4, Wisconsin



▲ PRP Location/Name
● Sampling Location

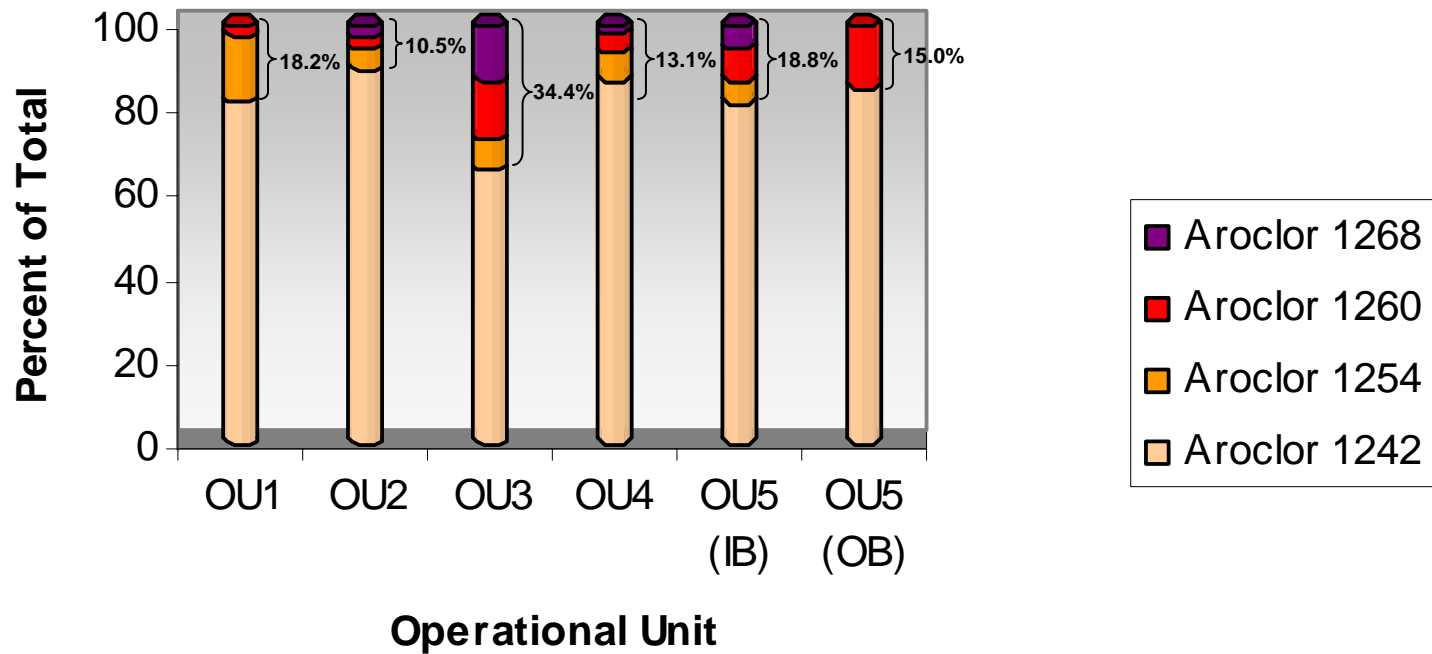
▲ PRP Location
● Sampling Location

▲ PRP Location
● Aroclor 1242 Positive

▲ PRP Location
● Aroclor 1242 Positive
● Other Aroclor Positives



Figure 5: Average Aroclor Contribution in Sediments (By Sample)
Historical Data
Lower Fox River, Wisconsin



Note: Historic Lower Fox River Remedial Investigation Database, 1980-2007. Source: Anchor Environmental, 2009.

IB = Inner Bay OB = Outer Bay